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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,907	10/29/2003	Tetsuhito Tsukagoshi	Q78094	4502

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EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 12/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/694,907

Applicant(s)

TSUKAGOSHI ET AL.

Examiner

Justin R. Fischer

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-21, 23-28 and 30-34 is/are pending in the application.
- 4a) Of the above claim(s) 23-28 and 30-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 8, 2005 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Continental (FR 1596358, of record) and further in view of Maeda (JP 64-30808, of record), Miura (JP 5-96905, of record), and Mechanics of Pneumatic Tires (Pages 212-213 and 881-884) and optionally in view of Gasowski (US 4,922,985, of record). As best depicted in Figures 2 and 3, Continental is directed to a radial, pneumatic tire construction comprising at least one carcass ply 2 formed of steel cords and a bead portion reinforcing layer 9, wherein said carcass ply is turned around bead core 4 from an inside toward an outside and said reinforcing layer extends on the axially inside and outside of said bead core. The reference further teaches that a rubber layer 12

Art Unit: 1733

controlling strain is arranged at the end portion of said reinforcing layer. The reference, though, fails to suggest that the carcass is terminated along a peripheral face of the bead core. In any event, it is extremely well known to wrap the carcass turnup around the bead core, as opposed to allowing the end be arranged in the upper bead portion, in order to increase tire durability (eliminates the cords of the carcass from being exposed), as shown for example by Maeda (Abstract) and Miura (Abstract). It is particularly noted that the tire of Maeda is extremely similar to that of Continental in that the tire is formed of a single carcass ply and a bead portion reinforcing layer- in this instance, Maeda specifically recognizes the advantages of modifying a conventional carcass turnup (Figure 4 of Maeda and Figures of Continental) in accordance to the limitations of the claimed invention. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to wrap the carcass of Continental around the bead core such that it terminated along the peripheral face of the bead core.

Regarding the bead filler, the Figures of Continental fail to expressly depict the presence of a "bead filler" or distinct rubber layer radially outward of the bead core 4. However, a "bead filler" represents one of the fundamental components of modern day tire constructions, as shown for example by Mechanics of Pneumatic Tires (Pages 212-213). One of ordinary skill in the art at the time of the invention would have expected a bead filler to be present in the tire of Continental. In this instance, then, the rubber layer 12 would be arranged between a bead filler and a bead portion reinforcing layer.

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As to the "plastic deformation region", such an arrangement is defined as being a "formed zone of rectangle, curve, or the like adaptable to a radially sectional profile shape of the bead core" (Page 5). Thus, it is required that the turnup portion or wrap part closely follows the contour of the bead core, whether it be circular, hexagonal, rectangular, or some additional geometry. As depicted in Miura, it appears that such an arrangement is consistent with carcass plies that are positioned on the peripheral surface of the bead core. Gasowski is additionally applied to further evidence the known use of a carcass turnup or wrap part having a contour that closely mimics that of the bead core. Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to include a "plastic deformation region" in the tire of Continental. It is emphasized that Miura and Gasowski evidence the known use of such a carcass turnup structure.

With respect to claims 13 and 14, Continental states that it is preferred that the rubber layer has a hardness that is greater than the "adjacent rubber layers 15". The "adjacent rubber layer 15" appears to be referring to the sidewall rubber. In regards to the bead filler, Mechanics of Pneumatic Tires evidences the common tire structure in which the bead filler is significantly harder than the sidewall (Pages 881-884). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to form the rubber layer 12 with a hardness between that of the filler and the sidewall.

As to claim 14, Mechanics of Pneumatic Tires provides several examples in which the bead filler has a hardness that is at least 1.4 times that of the sidewall. It is emphasized that the examples in Mechanics of Pneumatic Tires provide a general

Art Unit: 1733

relationship between the respective tire components, such that tires having a greater ratio are not excluded. Additionally, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed ratio.

With respect to claim 15, Figures 1 and 3 of Continental suggest that the rubber layers are formed with dimensions that satisfy the limitations of the claimed invention. While it is unclear if the drawings are "working drawings", it is clearly evident that the respective layers generally have the same thickness and thus satisfy the broad range of the claimed invention.

Regarding claims 16 and 17, Figure 3 of Continental clearly depicts the rubber layer as protruding slightly beyond the end of the bead portion reinforcing layer and well below the claimed maximum value of 30 millimeters. As to the inner end of the rubber layer, one of ordinary skill in the art at the time of the invention would have recognized that the positioning of said inner end is a function of the radial extent of the bead portion reinforcing layer. Thus, if the end of the bead portion reinforcing layer is slightly decreased, the inner end of the rubber layer would correspond to an upper part of the bead core. It is noted that Continental fails to place any criticality on the specific location of the end of the bead portion reinforcing layer, it being well recognized that such layers are commonly described as having a range of heights and are not limited to a single embodiment (e.g. Figure 3). Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to form the tire of Continental such that the inner end of the rubber layer corresponds to an upper part of the bead core. It is additionally noted that in some of

Art Unit: 1733

these instances, the inner end of the rubber layer would come into contact with the carcass turnup portion.

4. Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Continental, Maeda, Miura, Mechanics of Pneumatic Tires, and Gasowski as applied in the rejection of claim 12 above and further in view of Kabe (JP 01056210, of record). As depicted in Figures 3 and 4, the tire of Continental does not include a "recess zone" in a portion of the tire located inward from a position of maximum tire width. However, it is well known to provide such contours on the outer surface in order to provide enhanced tire durability, as shown for example by Kabe (Abstract). In particular, such a "recess zone" reduces the amount of shearing strain due to tire deformation (as a result of adjacent portions having large and small thickness). One of ordinary skill in the art at the time of the invention would have found it obvious to form the tire outer surface of Continental with a "recess zone" in order to obtain the aforementioned benefits. It is noted that Kabe specifically recognizes the end of a bead portion reinforcing layer as being a location where such a recess zone would eliminate strains (Figure 6). Lastly, it is emphasized that it is well known to form the tire outer surface with a concave profile, as opposed to a slightly curved profile, in which case a recess zone is formed.

With respect to claim 19, the "recess zone" of Continental would be located in a region axially outward of the end of the bead portion reinforcing layer, such that the rubber gauge outward of a height equal to 1.8 times the maximum bead width (as measured from the nominal diameter of the rim flange) would be substantially constant.

As to claim 20, the claim generally requires the recess zone be outward of "an alienation point". As noted above, the recess zone of Continental would be expected to present in a region axially outward of the end of the bead portion reinforcing layer such that it would be radially outward of "an alienation point" that is radially outward of the rim flange and outer surface of the bead.

Regarding claim 21, the "alienation point" can be one of several points that are inward of the "recess zone" (only required that it is inward of the recess zone and outward of the rim flange), such that the thickness at the "alienation point" would be expected to be extremely similar to the maximum bead thickness. Applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed relationship.

Response to Arguments

5. Applicant's arguments filed September 29, 2005 have been fully considered but they are not persuasive.

Applicant initially argues that the inventive rubber layer is entirely different from the rubber layer of Continental as to its arrangement, function, and effect. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). It is emphasized that the rubber layer 12 is positioned axially inward of the bead portion reinforcing layer independent of the positioning of the carcass. Thus, in modifying Continental in view of Miura and Maeda, one of ordinary skill in the art at the

Art Unit: 1733

time of the invention would have found it obvious to form a tire as defined by the claimed invention. It is particularly emphasized that a bead filler represents a fundamental component of pneumatic tires and one of ordinary skill in the art at the time of the invention would have expected such a component to be in the tire of Continental, though not expressly depicted as a distinct component.

With respect to the hardness of rubber layer 12, Continental teaches that said rubber layer has a hardness greater than "the adjacent rubber layers 15". As depicted in the figures, reference character 15 identifies rubber layer that are axially outside the turnup end of the plies, for example the lower sidewall rubber. This reference character does not incorporate the bead filler, which is positioned axially inward of the above noted turn up ends. In view of Mechanics, it is well recognized that the bead filler is conventionally formed of an extremely hard rubber composition and as such, one of ordinary skill in the art at the time of the invention would have found it obvious to form the rubber layer 12 with a hardness less than that of the bead filler and greater than that of the sidewall rubber.

As to JP '808, the reference is applied to evidence the use of the claimed turnup in an extremely similar tire construction comprising a bead reinforcing layer and a single carcass ply arrangement.

Regarding JP '905, applicant argues that the carcass ply does not cause plastic deformation. As noted above, plastic deformation is defined as being a "formed zone of rectangle, curve, or the like adaptable to a radially sectional profile shape of the bead core". As depicted in Figures 1 and 2, the carcass turnup or wrap part appears to

Art Unit: 1733

define a rectangular zone and as such, it is seen to constitute a region of plastic deformation. Gasowski is additionally applied to evidence a carcass turnup structure having a region of plastic deformation as defined by the original disclosure.

With respect to JP '210, applicant acknowledges that the tire contains a concave curve in the lower region of the tire side portion to thereby decrease the shearing strain through tire deformation and improve tire durability (Page 12). It is unclear how this differs from the concave construction of the claimed invention, which is described as reducing heat buildup and improving tire durability.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1733

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Justin Fischer

November 23, 2005